



INFLUENCE OF FEED RATE IN THE PREPARATION OF HYBRID POLYAMIDE 6/BENTONITE CLAY

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Polymer/clay nanocompósitos has been received great attention in the last years, mainly the developed with silicate layers, due to the need of engineering materials more efficient than the pure polymers to specific applications. These materials consist of a class of inorganic substances with nanometric dimensions, such as clays and others minerals, and are thinly dispersed inside a polymeric matrix. The hybrid organic/inorganic presents better properties when compared with pure polymers or with conventional composites, such as high modulus, high solvent resistance and to the fire and good optical, magnetic and electrical properties. The improve of properties is reached with a volume fraction of small value (1-10%) and due to the higher contact area. Also, the nanocompósitos has an additional advantage to be processed with conventional technique and equipments used in the polymer industry. In this work it was evaluated the influence of feed rate (5 and 10kg/h) in the preparation of hybrid polyamide 6/organophilic clay with a co-rotational double screw extruder, by XRD, mechanical characterization and thermogravimetric analysis. The results from XRD showed the production of nanocompósitos with exfoliation and/or partially exfoliation. The mechanical characterization under impact showed that the nanocompósitos presented impact resistance inferior in relation to the pure polyamide, i. e., tenacity loss. From thermogravimetric analysis the nanocompósitos presented greater residue content and high stability in relation to the pure polymer. It was observed that the feed rate give influence in the mechanical properties of the hybrids.